Calcium Metabolism and Its Relation to Blood Pressure During Pregnancy

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To the Editor: We read with great interest the article “Serum Vitamin D Insufficiency Is Related to Blood Pressure in Diabetic Pregnancy” by Weinert and colleagues dealing with the relationships between the calcium metabolism and blood pressure regulation in pregnant women with gestational diabetes mellitus. The results of their study demonstrated that diabetic pregnant women with 25-hydroxyvitamin D insufficiency (<30 ng/ml) had higher systolic and diastolic blood pressure than the remaining participants. Furthermore, the serum vitamin D levels presented a significant negative correlation with systolic blood pressure at the beginning and at the end of the third trimester in white women. The authors proposed that vitamin D insufficiency might be an independent predictor of systolic blood pressure during pregnancy.

There has been much evidence showing that hypertension might be linked to abnormalities in the calcium metabolism. We demonstrated that 24-hour urinary calcium excretion was significantly greater in hypertensive women than in normotensive women. In addition, the greater the calcium excretion, the lower the bone mineral density in women was. Shao et al. observed that bone mineral density was lower in pregnant women than in the control women at both early and late stages of pregnancy, and they speculated that vitamin D could relate to bone mineral density during pregnancy. On the other hand, it was reported that blood pressure might increase in pregnant women who had a high excretion of calcium and magnesium at week 12, indicating that an excessive excretion of calcium might be a biomarker for gestational hypertension and preeclampsia. Lalau et al. previously showed that hypertensive pregnant women had higher plasma parathyroid hormone and lower calcitriol (1,25-dihydroxyvitamin D). In this context, it is strongly suggested that calcium excretion and calcium-regulating hormones might actively participate in the regulation of both blood pressure and bone mineral density in pregnant women. Therefore, we would like to know whether vitamin D insufficiency might be associated with changes in urinary calcium excretion, plasma parathyroid hormone levels, and bone mineral density in hypertensive pregnant women in the study of Weinert and colleagues. Further studies should be required to assess more precisely the abnormalities in the calcium metabolism during pregnancy at both cellular and systemic levels and their link to gestational hypertension.

DISCLOSURE
The author declared no conflict of interest.

REFERENCES